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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,292	04/20/2004	Shinichiroh Ikemasu	970607C	2627

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EXAMINER	
WEISS, HOWARD	

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/827,292	IKEMASU ET AL.	
	Examiner	Art Unit	
	Howard Weiss	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-32,38 and 42-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23-32,38 and 42-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Attorney's Docket Number: 970607C

Filing Date: 4/20/04

Continuing Data: Division of 09/920,927 (8/3/01 now U.S. Patent No. 6,818,993) which is a division of 08/876,908 (6/16/97 now U.S. Patent No. 6,344,692)

Claimed Foreign Priority Date: 7/18/96 (JPX)

Applicant(s): Ikemasu et al. (Okawa)

Examiner: Howard Weiss

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Initially, and with respect to Claim 50, note that a "product by process" claim is directed to the product per se, no matter how actually made. See *In re Thorpe et al., 227 USPQ 964 (CAFC, 1985)* and the related case law cited therein which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); Buono v. Yankee Maid Dress Corp., 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).*

Note that Applicant has burden of proof in such cases as the above case law makes clear.

3. Claims 23, 26, 30, 43 and 45 to 48 are rejected under 35 U.S.C. § 103(a) as obvious over Hayashide (U.S. Patent No. 5,500,558) and Mu et al. (U.S. Patent No. 5,612,254).

Hayashide shows most aspects of the instant invention (e.g. Figure 1) including:

- a semiconductor substrate **1**
- an MIS transistor with a gate insulating film **3**, gate electrode **4** and source/drain regions **6** (i.e. first /second impurity diffusion regions) and formed in an active area defined by isolation regions **2**
- first insulating film **5** and second insulating film **9** of silicon nitride
- first and second contact areas with fist and second conductive layers **14**
- third insulating layer **10** with a third contact area and conductive layer **15**
- a fourth insulation film **19** of silicon nitride

Hayashide does not show the upper surface of the first and second conductive plugs substantially at the same level with the upper surface of the second insulating film. Mu et al. teach (e.g. Figure 4) to have the upper surface of conductive plugs **41/40** substantially at the same level with the upper surface of a second insulating film **23** to reduce the steps required for planarization schemes (Column 3 lines 26 to 28). It would have been obvious to a person of ordinary skill in the art at the time of invention to have the upper surface of conductive plugs substantially at the same

level with the upper surface of a second insulating film as taught by Mu et al. in the device of Hayashide to reduce the steps required for planarization schemes.

4. Claims 24, 25, 27 to 29, 31, 32, 44 and 49 to 51 are rejected under 35 U.S.C. § 103(a) as obvious over Hayashide and Mu et al., as applied to Claim 23, and in further view of Auer et al. (U.S. Patent No. 5,623,164).

Hayashide and Mu et al. show most aspects of the instant invention (Paragraph 3) except for the fourth and fifth conductive layer with a capacitor insulating film there between, being of cylindrical shape, the first conductive layer forming DRAM bit lines and the claimed impurity concentrations. Auer et al. teach (e.g. Figure 1) to have fourth **11** and fifth conductive **16** layer with a capacitor insulating film **47** there between, being of cylindrical shape, the first conductive layer forming DRAM bit lines to provide a globally planarized integrated semiconductor circuit (Column 2 Lines 1 to 3). It would have been obvious to a person of ordinary skill in the art at the time of invention to have fourth and fifth conductive layer with a capacitor insulating film there between, being of cylindrical shape, the first conductive layer forming DRAM bit lines as taught by Auer et al. in the device of Hayashide and Mu et al. to provide a globally planarized integrated semiconductor circuit.

Since the Applicant has not established the criticality of the concentrations stated and since these concentrations are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device of Hayashide and Mu et al.. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. *In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).*

As to the grounds of rejection under "product-by-process", how the conductive layers are formed, either from the same or different conductive layers, pertains to process

steps which do not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

   A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

   Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 38 and 42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 and 7 of U.S. Patent No. 6,344,692 in view of Auer et al. U.S. Patent No. 6,344,692 claims most aspects of the instant invention including D1>D3>D2. U.S. Patent No. 6,344,692 does not claim the second conductive layer being a capacitor opposing electrode of a capacitor. Auer et al. teach (e.g. Figures 24) to form capacitor opposing electrodes from conductive layers **11,16** to provide a globally planarized integrated semiconductor circuit (Column 2 Lines 1 to 3). It would have been obvious to a person of ordinary skill in the art at the time of invention to form capacitor opposing electrodes from conductive layers as taught by Auer et al. in the claimed invention of U.S. Patent No. 6,344,692 to provide a globally planarized integrated semiconductor circuit.

Response to Arguments

7. Applicant's arguments with respect to Claims 23 to 32, 38 and 41 to 51 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

9. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

11. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/758	thru 1/9/05
Other Documentation: none	
Electronic Database(s): EAST	thru 1/9/05

HW/hw
9 January 2006

Howard Weiss
Primary Examiner
Art Unit 2814